

heated glass,, which it has in common with the bodies named above. They state that liquids do not show this effect, at least that mercury, at or below the boiling point, has not the power; that it is not due to porosity; that the same body varies very much in its action, according to its state; and that many other gaseous mixtures besides oxygen and hydrogen are affected, and made to act chemically, when the temperature is raised. They think it probable that spongy platina acquires its power from contact with the acid evolved during its reduction, or from the heat itself to which it is then submitted.

348. MM. Dulong and Thenard express themselves with great caution on the theory of this action; but, referring to the decomposing power of metals on ammonia when heated to temperatures not sufficient alone to affect the alkali, they remark that those metals which in this case are most efficacious, are the least so in causing the combination of oxygen and hydrogen; whilst platina, gold, etc., which have least power of decomposing ammonia, have most power of combining the elements of water:—from which they are led to believe that amongst gases, some tend to *unite* under the influence of metals, whilst others tend to *separate*, and that this property varies in opposite directions with the different metals. At the close Of their second paper they observe, that the action is of a kind that cannot be connected with any known theory; and though it is very remarkable that the effects are transient, like those of most electrical actions, yet they state that the greater number of the results observed by them are inexplicable, by supposing them to be of a purely electric origin.

349. Dr. Fusinieri has also written on this subject, and given a theory which he considers as sufficient to account for the phenomena.¹ He expresses the immediate cause thus: "The platina determines upon its surface a continual renovation of *concrete lamina* of the combustible substance of the gases or vapours, which flowing over it are burnt, pass away, and are renewed: this combustion at the surface raises and sustains the temperature of the metal." The combustible substance, thus reduced into imperceptible laminas, of which the concrete parts are in contact with the oxygen, is presumed to

be in a state
combinable with the oxygen at a much lower
temperature than
when it is in the gaseous state, and more in
analogy with what
as called the nascent condition. That combustible
gases should
lose their elastic state, and become concrete,
assuming the form

¹ *Giornale di Fisica*, etc., 1825, torn. viii. p. 259.